

Appendix A

Glossary

The list of terms that follows is representative of those used by soil conservationists, soil scientists, engineers, developers, contractors, planners, and others involved in developing areas.

AASHTO — American Association of State Highway and Transportation Officials.

Acidity, Soil — The degree of acidity or alkalinity of a soil expressed in pH values. A soil that tests pH 7.0 is precisely neutral in reaction. Numbers lower than that indicate increasing acidity.

Acre-foot — The volume of water that will cover one acre to a depth of one foot. An acre-foot contains 43,560 cubic feet or 325,829 gallons.

Aesthetics — An approach dealing with the beautiful and with judgments concerning beauty.

Annual — A plant that completes its life cycle in one year or less.

Anti-seep Collar — A sheet of material that extends a minimum of 2 feet around a pipe, culvert or spillway to deter water seepage along the tube. This collar can be made of such material as concrete, steel, and plastic.

Apron — A floor or lining to protect a surface from erosion; for example, the pavement below chutes, spillways, or at the toes of dams.

Aquifer — A geologic formation or structure that transmits water underground. The term "water-bearing" is sometimes used synonymously with stratum to mean the same thing, and such water may be used for specific, planned purposes. Aquifers are usually saturated sands, gravel, fractures, caverns, or vesicular rock.

Asphalt Emulsion — An emulsifiable asphalt diluted 1:1 with water and used to tack or stick mulch together to help hold it in place.

Base Flow — The stream discharge from groundwater runoff. See *Runoff*.

Bedding — The process of laying a drain or other closed conduit in its trench and tamping earth or pouring concrete around the conduit to form its bed. The manner of bedding should be specified to conform to the earth load and conduit strength.

Bedload — The sediment that moves by sliding, rolling, or bounding on or very near the streambed. This is sediment moved mainly by tractive or gravitational forces or both but at slower speeds than the surrounding flow.

Bedrock — The solid rock that underlies the soil and other unconsolidated material. It also may be exposed at the surface.

Berm — A shelf that breaks the continuity of a slope.

Blind Drain — A type of drain consisting of an excavated trench refilled with pervious materials such as coarse sand, gravel, or crushed stones, through whose voids water percolates and flows toward an outlet. This is often referred to as a French drain because of its origin and widespread use in France.

Blind Inlet — Inlet to a drain in which entrance of water is by percolation rather than open flow channels.

Channel — A natural stream that conveys water; a ditch or channel excavated for the flow of water.

Channel Stabilization — Erosion prevention by stabilizing velocity distribution in a channel, using such measures as jetties, drops, revetments, and vegetation.

Chute — A high-velocity, open channel for conveying water to a lower level without erosion, and may be constructed from such material as vegetative soil, concrete, or steel.

Clay — As a soil separate, the mineral soil particles less than 0.002 of a millimeter in diameter.

Claypan — A compact, slowly permeable soil horizon that contains more clay than the horizon above and the one below it. A claypan is commonly hard when dry and plastic when wet.

CMP - Corrugated metal pipe.

Coefficient of Roughness (Hydraulics)

— A factor in velocity and discharge formulas representing the effect of channel roughness on energy losses in flowing water. Manning's "n" is a commonly used roughness coefficient.

Compaction — The process by which the soil grains are rearranged to decrease void space and bring them into closer contact with one another by rolling and tamping, thereby increasing the weight of solid material per cubic foot.

Conduit — Any channel intended for the conveyance of water, whether open or closed.

Contamination — A state of being polluted or impure, used here to indicate chemical, sediment, or bacteriological impurities in water.

Contour — An imaginary line on the land connecting points of the same elevation; a line drawn on a map to show the location of points of the same elevation; a series of such contours serving to delineate the topography of the land.

Crib Dam — A barrier of timber, forming bays or cells that are filled with stone or other heavy material.

CSM - Cubic feet per second per square mile of drainage area.

Cubic Feet Per Second — Rate at which the cubic footage of fluid passes a measuring point in one second. Abbreviation: cfs. Synonyms: Second-foot; CUSEC.

Cultipacker — A heavy, corrugated roller used to firm soil during seedbed preparation.

Cutoff — 1. Wall, collar, or other structure, such as a trench, filled with relatively impervious material intended to reduce seepage of water through otherwise porous strata. 2. In river hydraulics, the new and shorter channel formed either naturally or artificially when a stream cuts through the neck of a bend.

Dam — A barrier to confine or raise water for storage or diversion, to create a hydraulic head, to prevent gully erosion, or for retention of soil, rock, sediment, or other debris.

Debris — A term applied to the loose material arising from the disintegration of rocks and vegetative material, transportable by streams, ice, or floods.

Dike — An embankment to confine or control water, especially one built along the banks of a river to prevent overflow of lowlands.

Discharge (Hydraulics) — Rate of flow, specifically fluid flow; a volume of fluid passing a point per unit time, commonly expressed as cubic feet per second, million gallons per day, gallons per minute, or cubic meters per second.

Diversion — A channel with or without a supporting ridge on the lower side, constructed across or at the bottom of a slope for the purpose of diverting water flow.

Dominance — The influence or control over ecological communities exerted by a dominant.

Drainage — 1. The removal of excess surface water or groundwater from land by means of surface and/or subsurface drains. 2. Soil characteristics that affect natural drainage.

Drop-inlet Spillway — Overfall structure in which the water drops through a vertical rise connected to a discharge conduit.

Drop Structure — A structure for dropping water to a lower level and dissipating its surplus energy. A drop may be vertical or inclined.

Earth Dam — Dam constructed of compacted soil materials.

Emergency Spillway — A spillway used to carry runoff exceeding a given design flood. The spillway itself will then carry a design storm.

Erosion — The wearing away of the land surface by action of wind, water, or ice.

Flood Plain — Nearly level land, consisting of stream sediments, that borders a stream and is subject to flooding unless protected artificially.

Fragipan — A dense, brittle horizon that is very low in organic matter and clay but rich in silt or very fine sand. The layer is seemingly cemented when dry and has hard or very hard consistency.

Freeboard (Hydraulics) — Vertical distance between the maximum water surface elevation anticipated in design and the top of retaining banks or structures provided to prevent overtopping because of unforeseen conditions.

Gabion — A galvanized-wire basket filled with stone used for structural purposes. When fastened together, they are used as retaining walls and revetments, for slope protection, and similar structures.

Grade — 1. The slope of a road, channel, or natural ground. 2. The finished surface of a canal bed, roadbed, top of embankment, or bottom of excavation; any surface prepared for the support of construction, such as paving or laying conduit. 3. To finish the surface of a canal bed, roadbed, top of embankment, or bottom of excavation.

Grade Stabilization Structure — A structure for the purpose of stabilizing the grade of a gully or other watercourse; thereby preventing further headcutting or lowering of the channel grade.

Grassed Waterway — A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to conduct occasional surface water.

Gravel Filter — Graded sand and gravel aggregate placed around a drain to inhibit the movement of fine materials from the aquifer into the drain.

Gully — A miniature valley with steep sides cut by running water, and through which water ordinarily runs only after rains. A gully is of sufficient depth that it would not be obliterated by normal tillage operations. A rill is of lesser depth and would be smoothed by ordinary tillage.

Herbaceous Plant — A plant that remains succulent and does not develop woody tissue.

Herbicide — A chemical for killing plants.

Hood Inlet — Entrance to a closed conduit that has been shaped to induce full flow at minimum water surface elevation.

Hydraulic Grade Line — In a closed conduit, a line joining the elevations to which water could stand in risers or vertical pipes connected to the conduit at their lower end and open at their upper end. In open channel flow, the hydraulic grade line is the freewater surface.

Hydraulic Radius — The cross-sectional area of a stream divided by its wetted perimeter. This is represented by the "r" in Manning's formula.

Hydroseeder — A machine that mixes water and various combination of seed, fertilizer, ground limestone and mulch in a tank to form a slurry. The material is sprayed under high pressure over the area to be seeded.

Infiltration Rate — A soil characteristic describing the maximum rate at which water can enter the soil under specified conditions.

Jute Netting — A coarse, open mesh, web-like material woven of heavy (strands of 1/4-inch diameter or larger) jute twine. It serves the purpose of mulch and has the tensile strength and weight to resist water flow and erosion.

Landscape Planning — The art and science of analyzing, planning, and designing the physical landscape for beneficial human use and the conservation of the natural landscape resource.

Deterioration of the Landscape — Occurring when new elements are introduced and the effects are inadequately reclaimed due to little or no visual resource planning.

Destruction of the Landscape — Occurring when the introduction of elements causes abrupt changes and rapid damage due to no regard for visual resource planning.

Preservation of the Landscape — Occurring when existing elements of the landscape are incorporated into the proposed project with minimal disturbance.

Enhancement of the Landscape — Occurring when visual quality is improved upon by the project, with proper visual resource planning.

Modification of the Landscape — Occurring when created visual components are unnaturally strong compared to the adjacent landscape. Treatment is needed to create elements that compliment one another.

Land Leveling — The process of shaping the land surface for better movement of water and machinery over the land. This is also called land forming, land shaping, or land grading.

Landslide — The downward sliding or falling of either a dry or wet mass of earth, rock, or a mixture of the two. The slope is usually steep. Movement may be slow to rapid. Water is usually present helping to lubricate the mass, but true landslides do not contain enough liquid to cause the mass to flow.

Manning's Formula (Hydraulics) — A formula used to predict the velocity of water flow in an open channel or pipeline:

$$V = \frac{1.49 r^{2/3} S^{1/2}}{n}$$

V is the mean velocity of flow in feet per second; r is the hydraulic radius; s is the slope of the energy gradient or for assumed uniform flow the slope of the channel in feet per foot; and n is the roughness coefficient or retardant factor of the channel lining.

Mottled — Irregularly marked with spots of different colors that vary in number and size. Mottling in soils may indicate poor aeration and lack of drainage.

Mulch — Vegetable or synthetic material strewn on the ground to protect it from heat, to conserve moisture, and to reduce soil damage from wind or water. It may also be composed of an incoherent arrangement of aggregates.

Mulch Netting — Man-made material used to anchor mulch to prevent movement of the mulch by wind, water, or other forces.

Outlet — Point of water disposal from a stream, river, lake, tidewater, or artificial drain.

Parent Material (Soil) — The horizon of weathered rock or partly weathered soil material from which soil has formed.

Perennial — A plant that persists for several years.

Pesticide — An agent to destroy pests such as insects or rodents.

Principal Spillway — An open or closed channel constructed of permanent material used to convey excess water from a reservoir and designed to provide flood protection or to reduce the frequency of operation of the emergency spillway.

Pure Live Seed — % purity X % germination = % pure live seed. An excellent method to compare seed lots and upon which to base planting rates.

Rainfall — A fall of rain; the amount of water that falls as rain, expressed in inches of depth.

Reaction (Soil) — The degree of acidity or alkalinity of a soil expressed in pH values. A soil that tests pH 7.0 is precisely neutral in reaction, neither acid nor alkaline.

Relief — The elevations or inequalities of a land surface, considered collectively.

Rill — A steep-sided channel resulting from accelerated erosion. A rill normally is a few inches in depth and width. A rill may later become a gully or may be left the size it is due to more rapid erosion along other drainage ways.

Retardance (Vegetation) — The characteristics of the vegetative lining of a channel that tends to restrict and impede flow relative to a perfectly smooth channel.

Riprap — Broken rock, cobbles, or boulders placed on earth surfaces, such as the face of a dam or the bank of a stream, for protection against the action of water (waves or flow).

Runoff (Hydraulics) — That portion of the precipitation on a drainage area that is discharged from the area in stream channels. Types include surface runoff, groundwater runoff, and seepage.

Sand — Individual rock or mineral fragments in soils having diameters ranging from 0.05 of a millimeter to 2.0 millimeters.

Sediment — Solid material being carried or deposited by water, wind, gravity, or ice.

Sediment Dam — A barrier built across a stream channel to retain rock, sand, gravel, silt, or other material.

Sheet Erosion — Gradual and uniform removal of soil material from the surface of the soil, without formation of rills and gullies.

Side Slopes (Engineering) — The slope of the sides of a canal, dam, or embankment. It is customary to name the horizontal rating first, such as 1.5 to 1, or frequently, 1-1/2:1, meaning a horizontal distance of 1.5-feet for every 1-foot vertical.

Silt — Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 of millimeter) to the lower limit of very fine sand (0.05 of a millimeter).

Slip — See *Landslide*.

Specifications — A written description or a detailed precise presentation of something or of a plan or proposal for something.

Spillway — An open or closed channel, or both, used to convey excess water from a reservoir. It may contain gates, either manually or automatically controlled, to regulate the discharge of excess water.

Spoil — Soil or rock material excavated from a canal, ditch, basin, or similar construction.

Standard — Something established by proven ability or longevity, by authority, custom, or general consent as an example or approved practice.

Subsoil — Technically, the B horizon. Commonly, it is that part of the profile below 8 inches in a soil profile.

Surface Soil — The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, and about 5 to 8 inches in thickness. It is the plow depth layer.

Topsoil — Specifically, the top or surface portion of the soil, or the A horizon; high in organic matter and usually the most favorable part of the soil profile for plant growth.

Topsoiling — Obtaining topsoil (or soil material favorable to plant growth) from other places and placing it over an area where vegetation is to be established.

Toxic — Poisonous, injurious to plants through contact or systemic action. Toxicity is present in the surface of acid-producing material and/or soils of high mineral content and severely limits establishment and growth of vegetation.

Water Table — The highest part of the soil or underlying rock material that is wholly saturated with water.

Waterway — A natural course or constructed channel for the flow of water

Winter Annual — An annual plant that starts germination in the fall, lives over winter, and completes its growth the following season.